



UiO : **Department of Technology Systems**  
University of Oslo

**ITS 2021 samarbeid**

# **Digital Transformation and Societal Security**

Prof. Dr. Josef Noll

University of Oslo (UiO) & Basic Internet Foundation, Norway  
m: +47 9083 8066, e: [josef.noll@its.uio.no](mailto:josef.noll@its.uio.no)



# Thanks for your inputs @Cecilie

All utvikling basert i

- ansattes initiativ - hvordan kan administrasjon og ledelse tilrettelegge?
- godt samarbeid internt - dugnadsånd og respekt
- god administrasjon - ryddig og forutsigbar
- engasjement i studenter og studier
- engasjerte forskere
- god og demokratisk arbeide i studie- og forskningsutvalg (% tidligere forslag, blir ikke noe av)
- godt samarbeid med universitesledelsen og styret
- nettverksbyggende medarbeidere - gode eksterne relasjoner



# My Background

- ➔ "Traditional German"
  - Radio, Communications, Remote Sensing
  - Siemens, European Space Agency (ESA)
  - Global: Sea surface, snow coverage, soil moisture
  - Cycling "all year", environment & health
- ➔ From Norway to the World
  - Telenor R&D: 3G/UMTS (Kjeller)
    - ▶ "always online, always connected"
  - Took over from Internet Pioneer Pål Spilling
  - "Internet Lite for All" (2010)



Source: Akers Avis Groruddalen, 2013

# Activities

see: [http://its-wiki.no/wiki/Josef\\_Noll](http://its-wiki.no/wiki/Josef_Noll)

ongoing projects, led by Josef Noll:

	dealing with	supported by:	StartDate	Due date
Digitalisering VGS		Own	1 March 2021	31 May 2022

Josef Noll is member of ongoing projects:

- **NURTURE** (dealing with Nurturing SDGs through Capacity Building of Higher Education in Ethiopia, supported by: **NORHED II**, 1 April 2021, - 31 July 2021)
- **School Connectivity TZ** (dealing with Feasibility of sustainable School Connectivity in Tanzania, supported by: **Own**, 5 August 2020, - 1 December 2021)
- **RotaryKnowledgePortal** (dealing with Rotary Knowledge Portal - Trustable Information for Opening Opportunities, supported by: **Own**, 1 November 2020, - 31 May 2022)
- **Digitalisering VGS** (supported by: **Own**, 1 March 2021, - 31 May 2022)
- **RELIGHT** (dealing with ProDHP: Digital Health Promotion for the Centre for Global Health, supported by: **UiO**, 1 August 2019, - 31 July 2021)
- **NGINO** (dealing with Next Generation Internet - Norwegian Participation, supported by: **NFR**, 1 August 2019, - 31 July 2021)
- **Trygt Svangerskap** (dealing with Trygt Svangerskap/Reducing Violence in Pregnancy, supported by: **NFR**, 1 May 2017, - 30 April 2021)

Finished projects, led by Josef Noll:

	dealing with	supported by:	finished
DigiI	Non-discriminating Access for Digital Inclusion	NFR Norad	30 September 2020
IoTSec	Security in IoT for Smart Grids	NFR	30 September 2020
Basic Internet	Basic Internet, promoting <i>Internet light for all</i>	Own	31 December 2018
Wiki update 2016	Wiki as Project and Cooperative Knowledge Tool	ITS NFR	15 December 2016
Wiki update 2014	Update the Wiki, Property fix and new design elements	ITS	15 December 2014
Basic Internet access	Free access to information on the Internet	ITS	30 June 2014
FreeSecEDU	Building the security-aware society based on free Web access to security courses	ITS	15 January 2014
ITS-Wiki	CSS style sheets for wiki	ITS	30 November 2013
ConnectedLife	Development of the Research Group ConnectedLife at UNIK	ITS	31 December 2012
UAV-SME benefit	UAV, research for the benefit of SME		15 August 2012
PSHIELD	pilot Security Architecture for embedded systems	NFR JU Artemis ITS	30 November 2011

[https://its-wiki.no/wiki/Josef\\_Noll#tab=Presentations](https://its-wiki.no/wiki/Josef_Noll#tab=Presentations)

ITS 2021

Thumb	Title
	<b>Digitalisering og Bærekraftig Utvikling - internasjonalt</b> <a href="#">Click to Open</a> Elektrofagdag OsloMet - 9Apr2021
	<b>NURTURE_UiO_contribution_Apr2021</b> <a href="#">Click to Open</a> NURTURE kick-off, 8-9Apr2021
	<b>NGINO for Societal Security</b> <a href="#">Click to Open</a> NGINO:Activities Status Mar2021
	<b>Mobilutviklingen - hva er 5G og hvordan kommer vi å bruke 5G</b> <a href="#">Click to Open</a> Vestre Bærum Medlemsmøte - 15Mar2021
	<b>Mobile Developments-From 1G to 5G</b> <a href="#">Click to Open</a> Digital inclusion for a better world-Tsinghua University
	<b>Digital Inclusion and Societal Challenges</b> <a href="#">Click to Open</a> Digital inclusion for a better world-Tsinghua University
	<b>Non-discriminating Access and Digital Inclusion</b> <a href="#">Click to Open</a> Tanzania Digital Community Meeting 23Feb2021
	<b>Societal Security in the Digital World</b> <a href="#">Click to Open</a> ITS Kollegiemøte, 1Feb2021
	<b>Societal Empowerment through Energy and Information</b> <a href="#">Click to Open</a> Plaksha Tech Leaders Contribution, 11Jan2021
	<b>Empower the Unconnected Generation for a Sustainable Future</b> <a href="#">Click to Open</a> IEEE ANTS 2020



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mine interesser,  
presentert Nov2020  
på ITS  
strategiseminar

# Topics of Interest

- Societal Security, Trust
- Sustainable Infrastructures

Josef Noll

<http://www.mn.uio.no/its> - [h](http://www.mn.uio.no/its)  
[ITS-wiki.no](http://www.mn.uio.no/its)

2021:  
Digital  
Transformation and  
Societal Security



# Mobile nett i Afrika

og spørsmål om 5G:

<https://titan.uio.no/teknologi/2020/5g-nettet-er-til-fordel-teleoperatorene-ikke-forbrukerne>



“du vil bare bringe Internet til Afrika” 🙄

G





# bidragene og kommentarer til din presentasjon

# ansattes initiativ - hvordan kan administrasjon og ledelse tilrettelegge?

- Leder "Digital Global Health" at the Centre for Global Health (CGH)
- Generalsekretær "Basic Internet Foundation"
- Medlem i "Digital Assistent DA2021"
- Smart Grid: hjemmekontroll
- School Connectivity TZ



klar rollefordeling:  
- administrasjon tar seg av finansering (Marit er topp!)  
- vitenskapelig tar seg av prosjekter

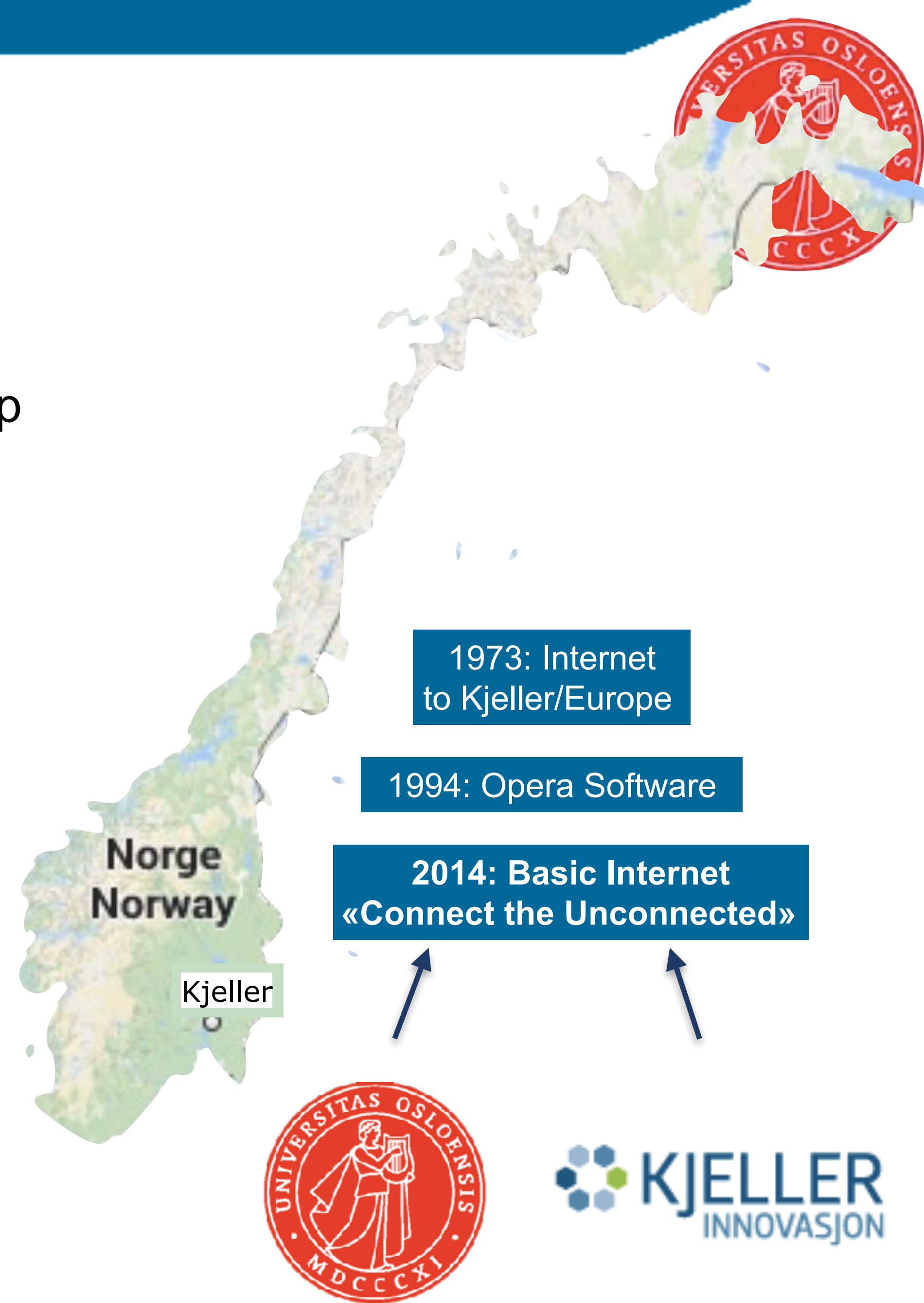
forenkling i prosjektadministrasjon for små prosjekter  
- en kode for 3-4 små bidrag

forskningspott for nye aktiviteter  
- avtale om aktiviteter hvor det ikke finnes finansering enda



## Special Purpose Vehicle (SPV): Basic Internet Foundation (non profit)

- **Information** is the **basis** for **education, health** and entrepreneurship
- **Digitalisation** is the engine of **economic growth** and wellbeing of people
- Sustainable development requires **digital inclusion**, which necessitates Internet for all
- **Impact** lives of the **unconnected** 3.5 billions of people in the world
- **University of Oslo (UiO/UNIK)** and **Kjeller Innovation** co-founded the Basic Internet Foundation
  - “**Internet Lite for all**”
  - free access to information for all



*On the Basic Internet Foundation's upcoming 6th birthday, our founder professor Josef Noll reflects on the challenges we face to deliver on our vision of internet*



“Our vision is to improve the life of **every human** through **free access to information** on the Internet....”

“This vision is carrying us forward every single day.

We **solved** the **challenge of access**, and are focusing now on **National Knowledge Portals** to **empower** individuals, societies and nations. Through **free access** to the portal we address **access, skills, regulations** and **inclusion**”



# godt samarbeid internet - dugnadsånd og respekt

- fungerer utmerket hos ITS
- mangler felles mål
  - “ensomme elektroder”

# god administrasjon - ryddig og forutsigbar

- vi har ekstrem engasjerte ansatte i administrasjon som er frustrert
  - ingen krav
  - ingen effisiens
- "det samme gjelder de vitenskapelige"
  - ingen krav til
    - ▶ prosjekter,
    - ▶ publisering,
    - ▶ undervisning,
    - ▶ formidling

"effective and efficient"

What are our cost factors (what takes time?)

what do we expect from ourselves?

how do we honour success?



# engasjement i studenter og studier

- involvert i 3 kurs
  - TEK5110 Building Mobile and Wireless Networks,
    - ▶ from 2021: Monitoring and Controlling of Communication Networks
  - TEK5370 Grid, Smartgrid and IoT
  - TEK5530 Measurable Security for the Internet of Things

bedre markedsføring av  
våre kurs

bedre synlighet (del av  
spesialisering)

# engasjerte forskere

→ se: [meetings.BasicInternet.no](https://meetings.BasicInternet.no)

→ ønsker meg støtte til å skrive på Norsk

“ikke sier at du jobber på Kjeller” 🙄

Ekspertene svarer:  
Hva kan vi vente oss av den nye  
**wifi-standarden**  
**802.11 ad?**



## Josef Noll participated in Meeting(s):

- NOREC Introduction Seminar Day 13th, 14th and 19th April (on 13 April 2021)
- Elektrofagdag OsloMet - 9Apr2021 (on 9 April 2021)
- NURTURE kick-off, 8-9Apr2021 (on 8 April 2021)
- IEEE-BasicInternet Information Exchange (on 30 March 2021)
- NGINO:Activities Status Mar2021 (on 18 March 2021)
- Digitalisering VGS 16Mar2021/NO (on 16 March 2021)
- Digitalisering VGS 16Mar2021 (on 16 March 2021)
- School Connectivity with Halotel Tanzania (on 15 March 2021)
- Vestre Bærum Medlemsmøte - 15Mar2021 (on 15 March 2021)
- University Collaboration: Uni Queensland Mar2021 (on 11 March 2021)
- Digital inclusion for a better world-Tsinghua University (on 9 March 2021)
- NO-School Connectivity UllernVGS Mar2021/NO (on 1 March 2021)
- NO-School Connectivity UllernVGS Mar2021 (on 1 March 2021)
- ISOC TZ-BasicInternet information exchange Feb2021 (on 12 February 2021)
- GCEI Representation in India (on 9 February 2021)
- Introduction Twende-BasicInternet Feb2021 (on 5 February 2021)
- Nordic UN Procurement Seminar 2021 (on 25 January 2021)
- Information Exchange Norwegian Embassy Jan2021 (on 21 January 2021)
- Plaksha Tech Leaders Contribution, 11Jan2021 (on 11 January 2021)
- People Centered Internet (PCI) Introduction with Basic Internet (on 7 December 2020)
- IEEE ANTS 2020 (on 15 December 2020)
- RELIGHT Workshop Dec2020 (on 14 December 2020)
- BrightProducts Lamp repair Dec2020 (on 7 December 2020)
- Global School Network (on 7 December 2020)
- I4PS SchoolConnectivity Dec2020 (on 1 December 2020)

# god og demokratisk arbeide i studie- og forskningsutvalg

- leder av PhD utvalget
- pådriver i PhD programråd for effektiv behandling
- god kommunikasjon med Øyvind om fagstrategi
  - mye "gamle kurs" fra bl.a. FFI dominans

"Forskningsutvalg - vi er et så lite institutt at vi trenger ikke et forskningsutvalg" 

hva er vår identitet?

hvor kan vi bli #1?

# godt samarbeid med universitesledelsen og styret

- utgangspunkt: frustrasjon "vi trenger ikke oppmerksomhet" (FFI preget) 🙄
- Solveig Kristensen viste ingenting om våre aktiviteter i BasicInternet.org
- Hun kjente heller ikke til arbeidet om "samfunnssikkerhet i den digital verden"

pro-aktiv offentlighetsarbeid (strategi!)

hjelp til formidling (eksempel: Jörn Klein, USN)



# nettverksbyggende medarbeidere - gode eksterne relasjoner

- ➔ NæringsPhD - industrirelevans
  - EyeNetworks
  - eSmart Systems
- ➔ strategiske allianser
  - Smart Innovation Norway
  - [UniversityCollaboration.BasicInternet.org](http://UniversityCollaboration.BasicInternet.org)
- ➔ "Open-world approach"
  - [ITS-wiki.no](http://ITS-wiki.no)
  - 487 companies,
  - 1568 contact people

- A**
- A-hus
  - Aalborg University
  - AAU
  - ABB
  - Accenture
  - Acciona
  - AD Gruppen
  - Addis Ababa University
  - Adra
  - AF Gruppen
  - AFConsult
  - Africa University
  - African Child

- C cont.**
- CMI
  - Codewise
  - Comlight
  - Computas
  - Conexus Technology
  - Correlate
  - COSTECH
  - CREATE-NET
  - CS
  - CSAIT
  - CSIR
  - Curatec
  - CWIN

- F cont.**
- Fredrikstad kommune
  - Freyr Capital Partners
  - FSC
  - FSK-Forum
  - FutureCompetence
  - FYS
  - Fønd
- G**
- GCEI
  - Gemeinde Murnau
  - Ghent University
  - Giertsen Energy Solutions


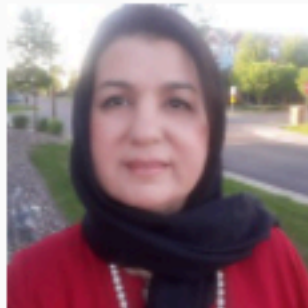


## University Collaboration for Digital Inclusion

Managing trusted information and free access to this information are the core components of the University collaboration for digital inclusion.

The representatives from the participating Universities commit to

- (i) address digital inclusion as part of their academic work,
- (ii) have their research focus on contributions to the SDGs
- (iii) contribute with trusted and peer-reviewed information, addressing e.g. education, health, agriculture, financial inclusion,
- (iv) establish workshops and conferences on digital inclusion and become thought leaders,
- (v) contribute with knowledge and information to the public decision making,
- (vi) form a global alliance on digital inclusion, and
- (vii) contribute to developing global standards to meet the SDG goals.

### Participating Researchers World-Wide

	Universities in Algeria (DZ)
	Bentenbi Chaibdra Tani Associate Professor, University of Oran1
	Universities in Australia (AU)
	Ryan Ko Prof. at the School of ITEE; Chair and Director of UQ Cyber Security

ensure you get the best experience on our website.



# hvor kan jeg bidra

# Addressing Education 5.0 and Global Challenges

## → Cognitive skills

- literacy and numeracy
- critical thinking
- problem solving

*Edu 3.0*

## → Social and emotional skills

- empathy, teamwork
- leadership, cultural awareness
- fraternity & social friendship

*Edu 4.0*

## → Global challenges

- Climate, Sustainability (SDGs)

*Edu 5.0*



# Affordable Energy & Internet Lite for All

*the catalysts for the goals*

Showcase  
"Non discriminating access"  
project

- funded by RCN and Mfa/Norad (14.9 MNOK for 2017-2020)
- Tanzania: digital health
- Mali: energy

**5** GENDER EQUALITY

**3** GOOD HEALTH AND WELL-BEING

**13** CLIMATE ACTION

**4** QUALITY EDUCATION

**8** DECENT WORK AND ECONOMIC GROWTH

**10** REDUCED INEQUALITIES

**7** AFFORDABLE AND CLEAN ENERGY

**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE

**16** PEACE, JUSTICE AND STRONG INSTITUTIONS

**17** PARTNERSHIPS FOR THE GOALS

**Energy & Internet Lite for All**

Target 7.1&7.2      Target 9.C      Target 16.10

# BasicInternet

## → Free access to National Knowledge Portal

- 1) Access - Information Spot per village
- 2) Skills - Health, Edu on Knowledge Portal
- 3) Regulations - Freemium model
- 4) Inclusion - Free access for all #LeaveNoOneBehind

## → Internet Lite & Freemium model for access

- free access to National Knowledge Portal for all
- premium access to broadband
- sustainable solution

+18 dB  
>20 km

“Providing Internet to the basic of the pyramid isn't a question of affordability, but rather a question of sustainability”  
Internet Governance Forum, Panel, WIN

At least  
**one Information Spot**  
per village

# Tremendous success by the DigiI project in Tanzania

- ➔ The DigiI project was the starting point of our involvement across Africa
  - Partnerships in 10 countries in Africa
  - Operations in TZ, ET, KE, RW
- ➔ Norwegian governmental white paper, Meld. St. 11 (2019-2020)
  - Focus: Access, Skills, Regulations, Inclusion
  - excellent international network (ITU, UNICEF, UNDP, A4AI, ISOC,...)
- ➔ Invitation to connect 500 schools in Ethiopia
  - (request for funding to NO gov.)
- ➔ Projects
  - TZ: 10 schools pilot with Government and TelCos
    - upscale to another 450 schools
    - community-driven InfoSpots with 5 communities
  - KE: communities in Kizumu and Siaya areas
  - ET: University Collaboration and MoE School Connectivity
- ➔ Sustainability of Solutions
  - Need CAPEX support to establish the InfoSpots
  - Franchise Model
  - Regulations: Free access to National Knowledge Platform

## 1 DigiI Villages

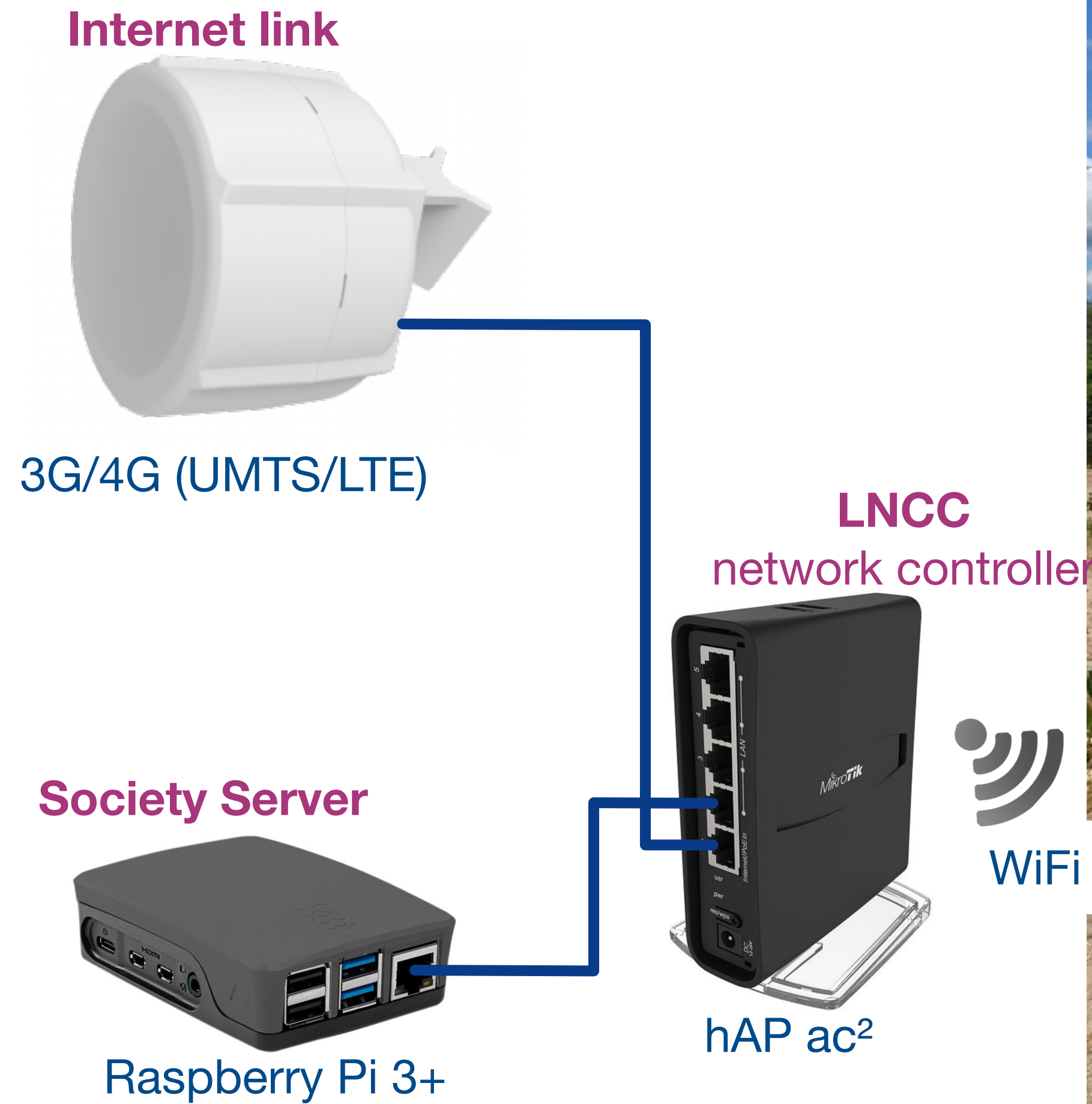
- 1.1 Tanzania: Connected Villages and Schools
- 1.2 Kenya: Connected Villages and Schools
- 1.3 Ethiopia
- 1.4 Congo
- 1.5 Rwanda
- 1.6 Myanmar
- 1.7 Ghana
- 1.8 Zimbabwe
- 1.9 South Africa
- 1.10 Uganda
- 1.11 Mali
- 1.12 India
- 1.13 Lessons learned

## 2 Connect your village/school/health facility/community centre?

- 2.1 Achievements, Lessons learned and Recommendations
  - 2.1.1 DigiI Achievements
  - 2.1.2 Recommendations and Ongoing Work



# Connecting the Unconnected





# **Background: Activities and Success Stories**

***(ikke bruk tid til å lese)***



# Samarbeid med OsloMet og skolene i Oslo og Viken

- VGS: Utdannelse i fag og bærekraft
  - Ullern, Bjerknes, Strømmen,....
  - Skolen etabler utstyr
  - Elever bruker utstyr for læring
- Sender til partnerskoler i utviklingsland
- Etabler global partnerskap med skoler i utviklingsland
- optional: join Global Culture Education Initiative [GCEI.net](https://its-wiki.no/wiki/Digitalisering_VGS)

## Praktiske oppgaver [\[edit\]](#)

VG 1: <https://www.udir.no/lk20/ele01-03/om-faget/tverrfaglige-temaer>

- Freemium (fri & premium) model: fri tilgang til informasjon, betalt tilgang til bredbånd. Kan vi anvende eksempel fra veinett, hvor fotgjengere og syklister kan bruke veien uten å må betale? - Praktisk: måle hvor mye data brukes ved å streame video
- Radio: line-of-sight versus hinder på veien
- **Dekning og rekkevidde:** løpe rundt og måle Wifi eller/og mobildekning. Trenger en Android tablet/phone med Network Cell Info Lite, se: [Digl:Establish\\_InfoSpot](#)
- fordelene med Raspberry Pi (RPI) som "school server" versus 3G nett. Teste ved at 5-6 elever hente video via et dårlig 3G/4G nett, versus hente video lokalt fra RPI.
- koble sammen kabler for å etablere Wifi nett
- **Energi og informasjon:** hvor mye energy bruker hele equipment? Hvor stor må solselve og batteri være for å holde hele natt, 1,5 dager, ...

VG 2 elenergi og ekom: <https://www.udir.no/lk20/ele02-03>

VG 2 Datateknologi og elektronikk: <https://www.udir.no/lk20/del02-03>

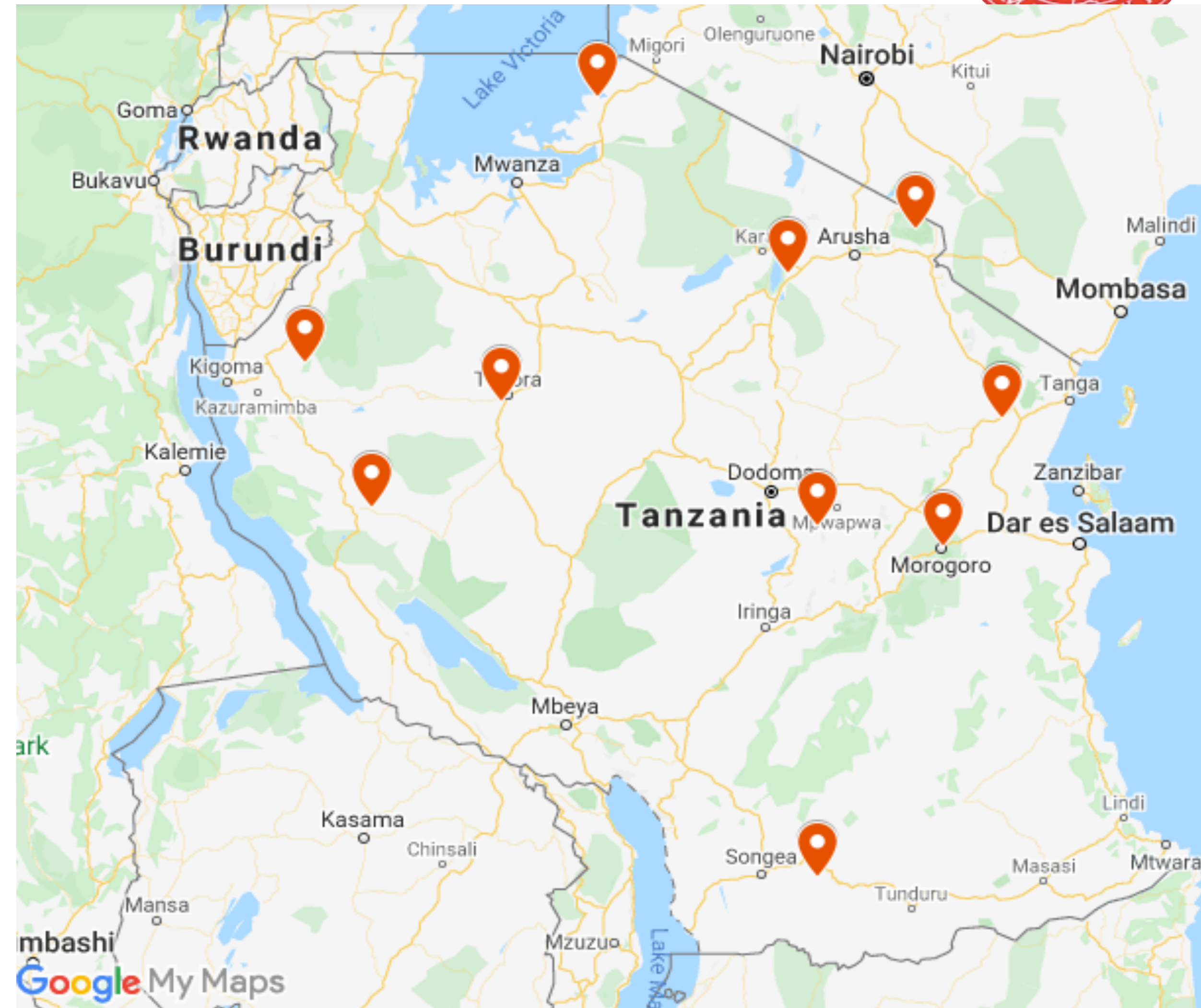
- **planlegge landsby**, frekvens, dekning, kapasitet, f. eks. link fra [Digl:Migoli](#) til [Digl:Izazi](#), eller fra [Digl:Selela](#) til Mto wa Mbu, se [Digl:Calculation\\_of\\_Radio\\_link](#)
- **Avstander i Afrika**, Se: <https://its-wiki.no/wiki/RDB52G> for plasser hvor utstyr er installert
- konfigurering: login to antenna, LNCC (RDB52G)
- **Konfigurering av en Raspberry PI**, hvordan installere en Web server og innhold
- Mesh-network basert på lokal hot-spot med 5 GHz og 2,4 GHz

1 Factpage of Project Digitalisering\_VGS  
1.1 Praktiske oppgaver  
2 Open Action Items  
3 Meetings

[https://its-wiki.no/wiki/Digitalisering\\_VGS](https://its-wiki.no/wiki/Digitalisering_VGS)

# School Connectivity Tanzania

- ➔ Successful implemented Jan-Apr2021:
  - Mapping, connect and ensure free access to educational contents in 10 schools from 10 regions in Tanzania.
- ➔ General Objectives:
  - To create sustainable model for school connectivity and offer free access to educational content at the end of the project.
- ➔ Specific Objective:
  - To offer free digital educational contents in secondary Schools.
  - Reliable service provider in schools.
  - Installing internet infrastructures in school.





















mabadiliko  
nchi

**CHAMPIONS**



Digital inclusion is a key for health, education and meaningful work. Connecting developing economies with free access to information through the alliance of IT, Telecom, Academia, and public sector partners will create the partnership for achieving the Sustainability Development Goals (SDG 2030).

Beware of Coronavirus is created with support from RELIGHT. The Story of Tapeworms, The Story of HIV, The Story of Tuberculosis and The Story of Anthrax are created with support from The Digi Project.

# Success story: Digital Health Promotion

[http://  
DigitalGlobalHealth.no](http://DigitalGlobalHealth.no)

Results in TZ: **Knowledge increase**  
Cysticercosis (TSCT) 60%  
Tuberculosis 30%  
HIV/AIDS 13%

## Health Videos in English

### Beware of Coronavirus



### The Story of Tapeworms

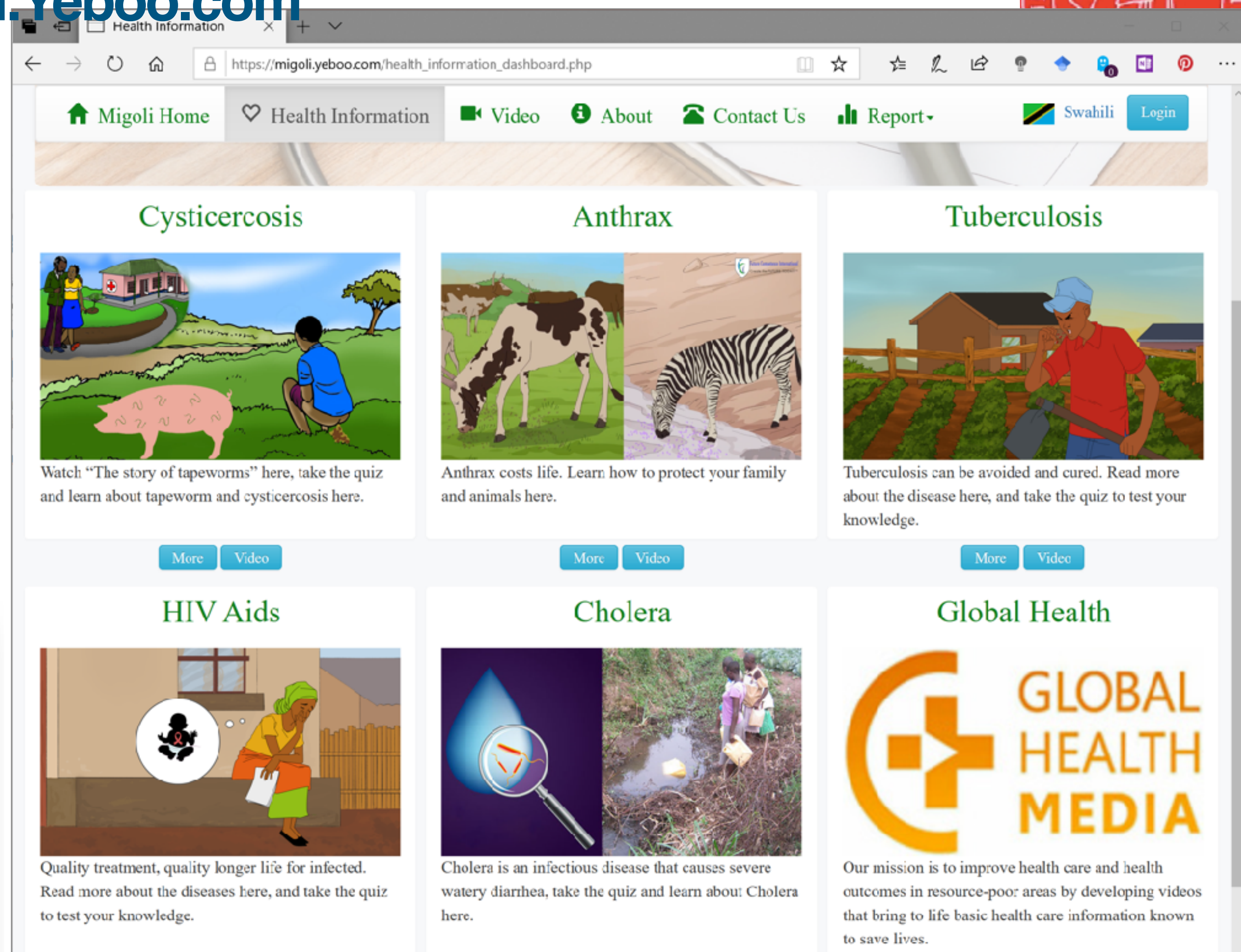


# Village Platform at <https://Migoli.Yeboo.com>



The website will contain locally stored information on

- Health
- Entrepreneurship
- Education
- Agriculture
- Financial inclusion (e.g. via Women Community Centers)



Exemplary: Digital Health Information



# Example:



**YouTube:**  
<https://www.youtube.com/watch?v=Bc3ojifPRlc>

**Download (16:9)**  
<https://owncloud.basicinternet.org/index.php/s/4gB1Zdux6Clx1yR>

**Download (social media)**  
<https://owncloud.basicinternet.org/index.php/s/jERKYmObsGcePBH>

# Success story: Ethiopia

- ➔ Pilot connection: Koye Secondary School
- ➔ Adoption of Regulations, “free access to and education”
- ➔ Invitation by the Ministry of Education to connect 3500 secondary schools
  - lack of funding
- ➔ Excellent University Network





# Free access to information - in Ethiopia

- Government Ethiopia - Agreement
  - “free access to health & education”
  - Ministry of Health
  - Ministry of Education
  
- Ethio Telecom offers “zero rating”
  - Health (MoH): MoH.gov.et
  - Ephi.gov.et & Covid19.et
  - Education: National Digital Library NDL.ethernet.edu.et
  
- follow-up from discussions after African Innovation Week (AI

ኢትዮ ቴሌኮም የከፍተኛ ትምህርት ተቋማት ተማሪዎች እና መምህራን ትምህርታዊ መረጃዎችን ከ <http://ndl.ethernet.edu.et/> በነፃ ማግኘት እንዲችሉ አደረገ

በአገራችን የኮሮና ቫይረስ (COVID-19) ወረርሽኝን ለመከላከል በመንግሥት በኩል በርካታ እርምጃዎች እየተወሰዱ ሲሆን ከእነዚህም መካከል የገፅ ለገፅ ትምህርት በማቋረጥ ተማሪዎች ቤታቸው እንዲቆዩ መደረጉ ይታወቃል።

ከዚህ ጋር በተያያዘ ኩባንያችን ከግንቦት 21 ቀን 2012 ዓ.ም ጀምሮ የከፍተኛ ትምህርት ተቋማት መምህራን እና ተማሪዎች ከትምህርት ጋር ተያያዥነት ያላቸውን አጋዥ መረጃዎች ከ <http://ndl.ethernet.edu.et/> በነፃ ማግኘት እንዲችሉ በማድረግ የመማር ማስተማሩ ሂደት እንዲቀጥል የበኩሉን አስተዋፅኦ ማድረጉን በደስታ ይገልጻል።

በተመሳሳይ ሁኔታ ኩባንያችን ስለወረርሽኙ ወቅታዊ መረጃ ለህብረተሰቡ እየሰጡ የሚገኙትን የጤና ሚኒስቴር <http://www.moh.gov.et> ፣ የኢትዮጵያ ህብረተሰብ ጤና አገልግሎት <http://www.ephi.gov.et> እንዲሁም የተቀናጀ የኮቪድ 19 መቆጣጠሪያ ስርዓት ድረ-ገፅን <http://www.covid19.et> በነፃ እያቀረበ መሆኑ ይታወቃል።



# Addressing the need

- School connectivity in Ethiopia
  - Total Project: connect all schools
  - Phase 1: 3.500 secondary schools
    - ▶ 6 months time frame, 35 Million USD
  - Phase 2: all secondary schools
    - ▶ time frame 2020-2022
- Norway's share
  - Connect 500 secondary schools
  - 45.950 NOK, 1 year project
- Collaboration & Innovation
  - Competence building
  - Local deployment (Univ. & IBA Ethiopia & local ground)
  - Community empowerment (re-using)



ቀን / Date: 20/8/2012  
ቁጥር / Ref: 1/2-4344/23296/35

## **Innovation Norway** **Oslo, Norway**

**Subject: Financial Support for Digital Interconnection of Ethiopian Secondary Schools**

Currently more than 26 Million students are in School in Ethiopia in more than 46 thousand Schools in the pre-Primary, Primary and Secondary level classes. Among these large number of Schools, Schools connected to a bear 2Mbps Internet connectivity is less than 500 in number. It implies that these young generation is being brought up in non-digital Schools in a Digital Age.

The Ministry of Education has now decided to change this through implementation of two Phases. Phase one is provision of 300Mbps Internet connectivity to the 3500 Secondary Schools within a time period of 6 months at an estimated Budget amount of 35 Million USD. The Second Phase is to be implemented over two years and is set to interconnect all the remaining Primary and Pre-Primary Schools at a minimum of 50Mbps speed. The Budget requirement for the Second phase is yet to be worked out.

The Educational Network Connectivity is going to be exclusively used for Educational and governmental Services and once installed will provide free internet services to the 3500 Secondary Schools and other government offices.

This is, therefore, to kindly request your good office to financially support the first phase of this Project and be part of the digital transformation in the Ethiopian General Education Sector.

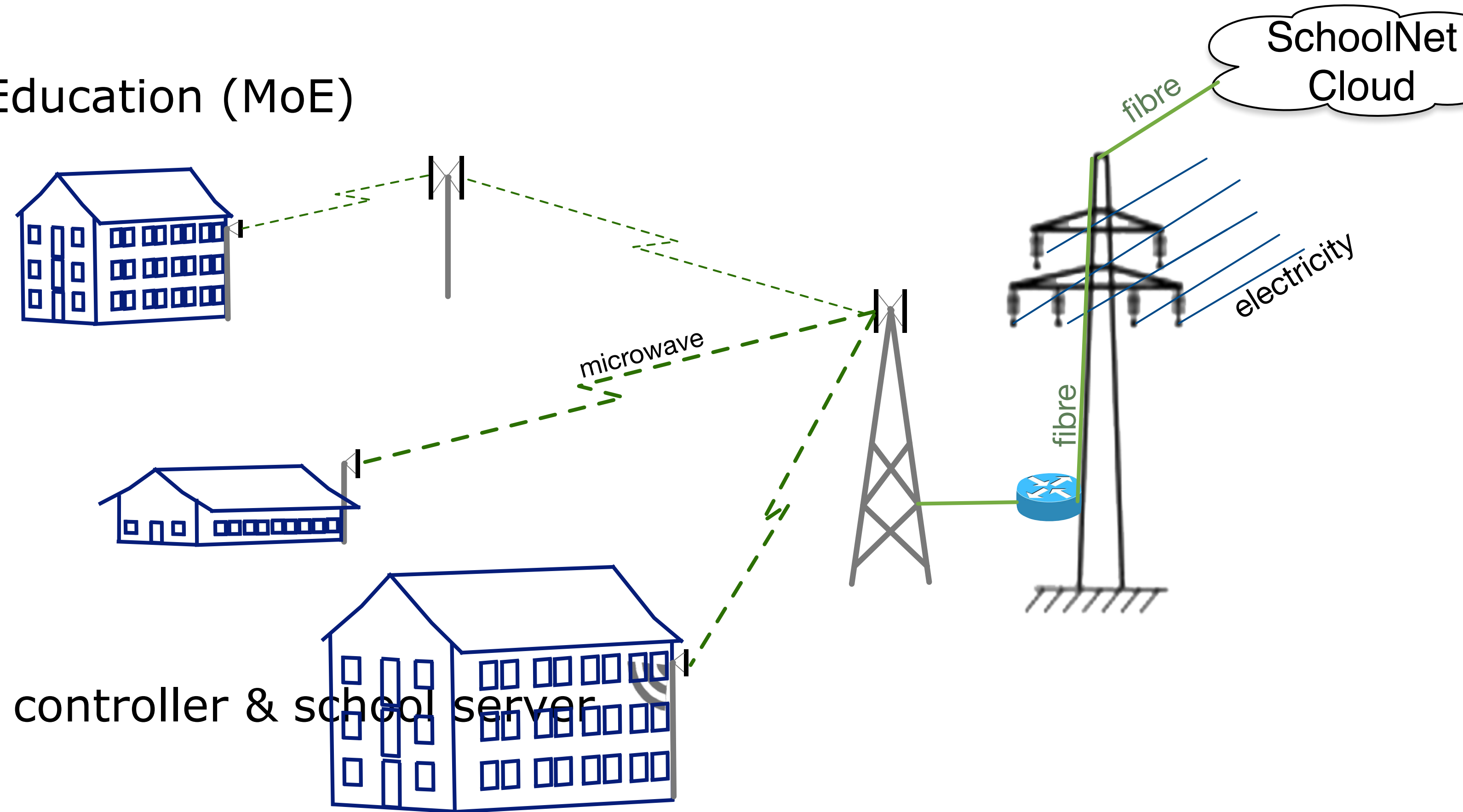
My Best Regards

*Getahun Mekuria*  
**Dr.ing. Getahun Mekuria**  
**Minister**



# Realisation

- ➔ SchoolNet distribution
  - educational network by Ministry of Education (MoE)
  - national fibre on high-voltage lines
  - fibre to microwave
- ➔ Microwave distribution
  - 0-5 km: point to multipoint
  - 5-15 km: point to point (mast)
  - >15 km: microwave relay mast
- ➔ Local school
  - receive microwave antenna
  - local Wifi distribution: local network controller & school server



# Proof of concept

- Koye Secondary and Preparatory School
  - connected as part of African Innovation Week 2019
  - using mobile network
- Local knowledge portal
  - [yeboo.com](http://yeboo.com) health information



# Success story: Tanzania

- Successful DigI project
- Ongoing School Connectivity
  - 10 schools proof of concept
  - Scale-up to 450 schools
- 4 active communities pushing for connectivity
- Part of “Digital Transformation” Board of Ministry of Communications and ICT

## Connectivity provided by **BOACSE**

- Chiwanda Secondary School is at Chiwanda village in Nkangamo Ward, Tunduma Township Authority - in collaboration with **BOACSE** <https://plus.codes/RH79+CP> (Rashid)
- Chikanamlilo Secondary School in Halmashauri, Momba - in collaboration with **BOACSE**

## Connectivity provided by **African Child**

- **Mkuranga District**, in the North-East of Tanzania - in collaboration with **African Child** at Kiparang'anda and Mwanambaya
  - Kiparang'anda: <https://plus.codes/R5VG+RC>
  - Mwanambaya: <https://plus.codes/6G4XX62R+82>

## School connectivity in TZ with UCSAF, TTCL, Vodacom, African Child, Shuledirect, ...

- see: [School\\_Connectivity\\_TZ](#) for project description
- Musoma tech secondary school: <https://plus.codes/FRCJ+GJ>
- Morogoro secondary school: <https://plus.codes/5MCF+35>
- Kigoma grand secondary school: <https://plus.codes/F5GC+G5>
- Tabora boys secondary school: <https://plus.codes/XR57+FR>
- Mizengo Pinda secondary school: <https://plus.codes/V5R4+RC>
- TPC secondary school: <https://plus.codes/F8RF+73>

## Connectivity provided by **UDES** Usevya Development Society

- **Youth Centre Mpanda - Katavi**, connected by the Usevya Development Society (**UDES**) in November <https://plus.codes/V6RP+MC>
- **Usevya village and plans for other 5 sites**, Secondary School, Youth Center and Health Center

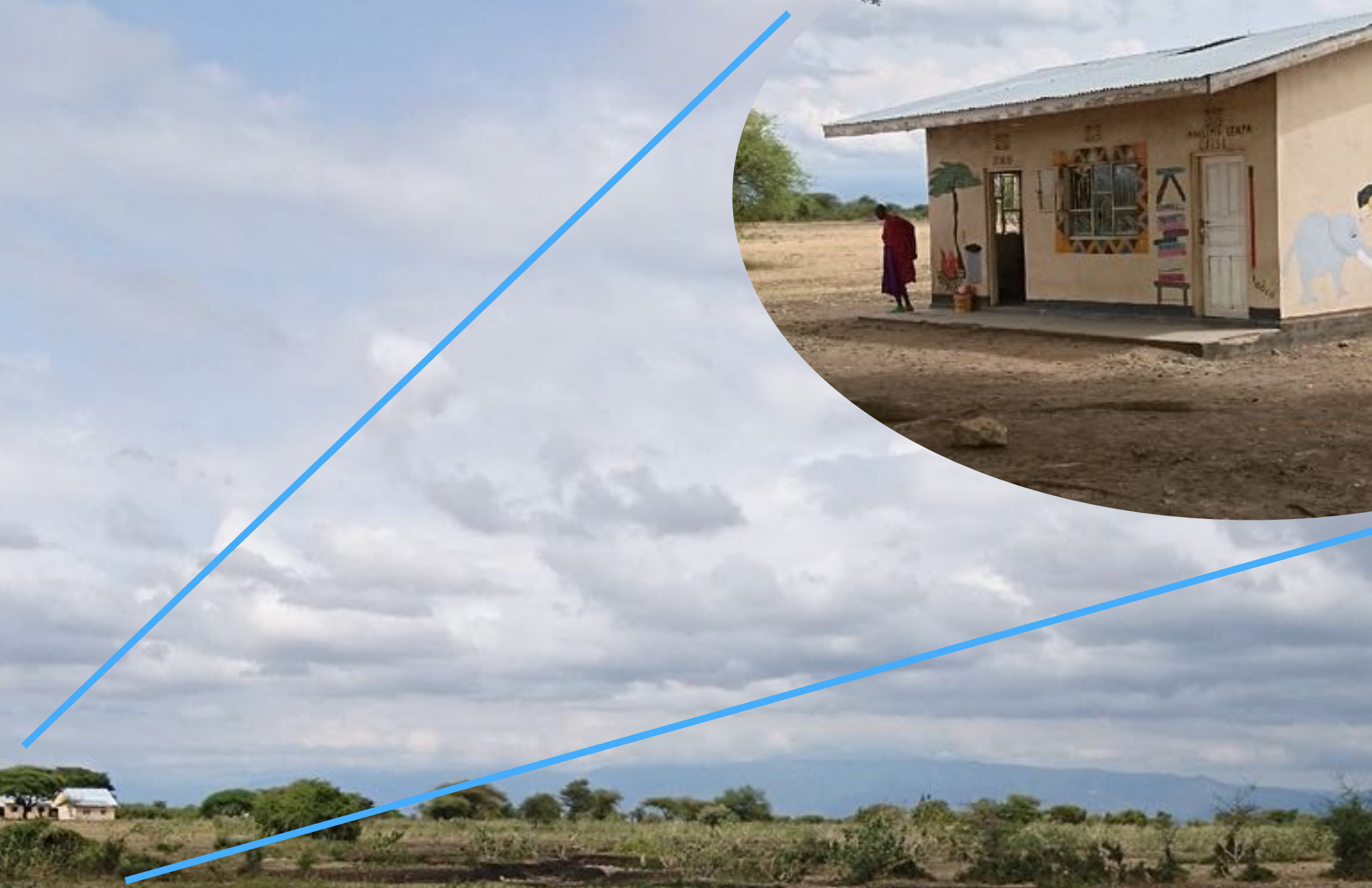
## Connectivity provided by **Tanzania Community Networks Association (Matogoro Jabera)**

- Kasulu,



see: [Villages.BasicInternet.no](http://Villages.BasicInternet.no)

Our InfoSpot in Esilalei, TZ  
Solar-powered



Mto wa Mbu

Lake Manjara

Esilalei

Dispensary

12x2

4.6 km



# Esilalei (Arush







# “Connect the Unconnected”

## Selela Market



- Antenna in 6 m height
- Reaches Tigo tower > 20 km away



**The mobile phone has replaced the machete (even in places without Mobile Broadband)**

# “Connect the Unconnected” Izazi



Antenna

Village office

Installation time: 1,5 h  
catching the signal from the Vodacom  
tower in Migoli (~10km away)

# Selela Market Place



- Antenna in 6 m height
- Reaches Tigo tower > 20 km away



# Migoli (Nyerere High School)



1271 pupils, 34 full-time teachers  
9 m pole (above trees) base to connect  
- Migoli health station  
- Migoli village office



# Success story: Kenya

- ➔ Business driven country
- ➔ Focus: Kisumu and Siaya Counties
- ➔ Strong communities
- ➔ Good opportunity for scaling

Collaboration with Africa Higher Education Research Initiative ([AHERI](#)) and CISS

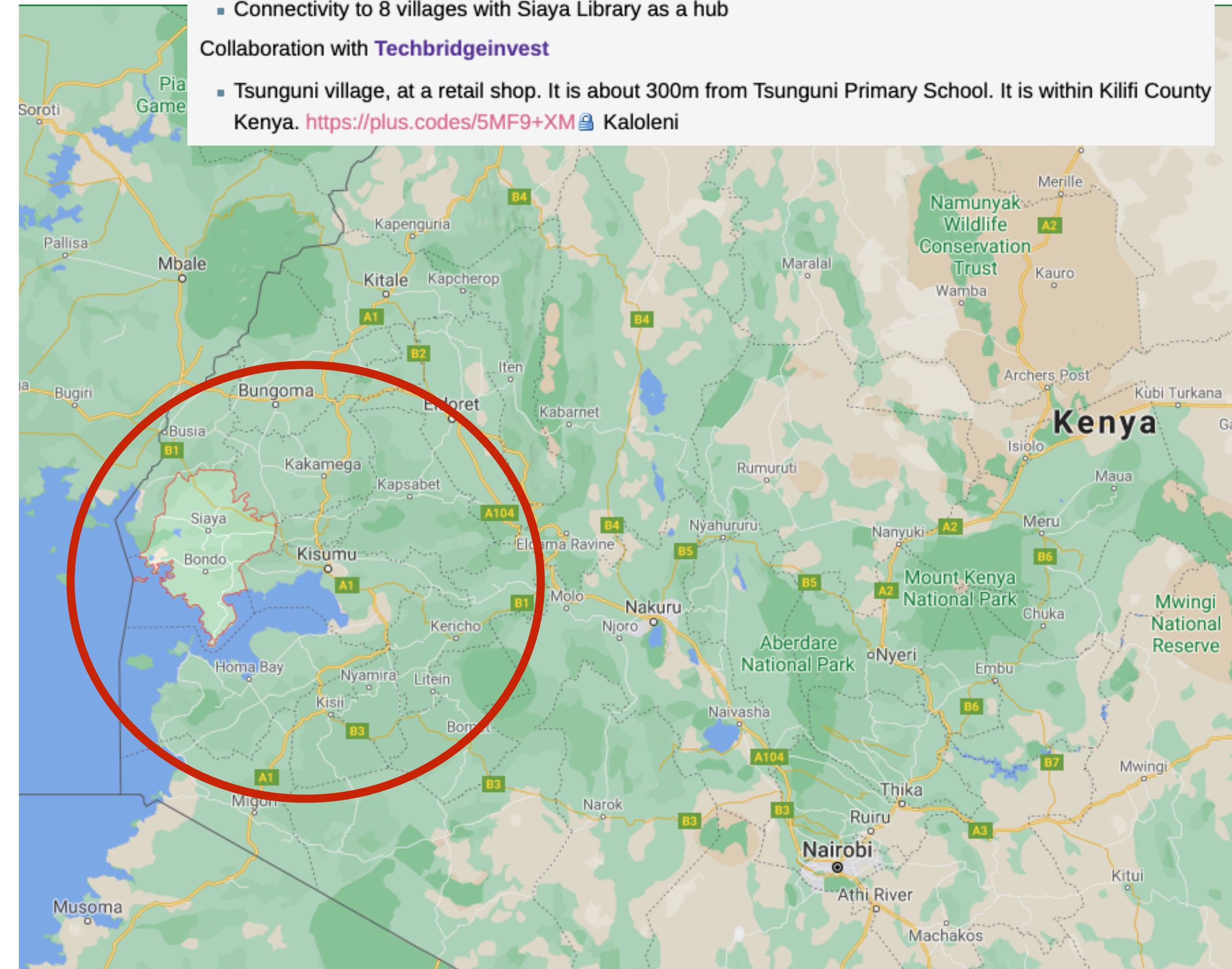
- Contacts Robert Owino and Barrack Otieno, Phase 1 with 6 installations in Spring 2020
- Nyalenda Informal Settlement in Obunga in Partnership with KUAP ([www.pandipieri.org](http://www.pandipieri.org))
- Obunga Informal settlement in partnership with KUAP ([www.pandipieri.org](http://www.pandipieri.org))
- Omuga Technical and Vocational Centre Kabondo Homabay
- CISS Community Centre Akala Gem County Rural [www.cisskisumu.org](http://www.cisskisumu.org)
- CISS Community Centre Ng'iya Rural [www.cisskisumu.org](http://www.cisskisumu.org)
- CISS Community Centre Kisumu County Peri-Urban

Collaboration with the Siaya County

- Siaya County with Library <http://www.siayalibrary.org/> (Rotarian [John Malamba](#))
- Connectivity to 8 villages with Siaya Library as a hub

Collaboration with [Techbridgeinvest](#)

- Tsunguni village, at a retail shop. It is about 300m from Tsunguni Primary School. It is within Kilifi County Kenya. <https://plus.codes/5MF9+XM> [Kaloleni](#)







# Konklusjon

- jeg kan levere på dine premisser (SDGs, Digital Transformasjon og Samfunnssikkerhet, Smart Grid)
- Trenger din hjelp til at resultatene blir synlig (og ikke tiett ihjel)